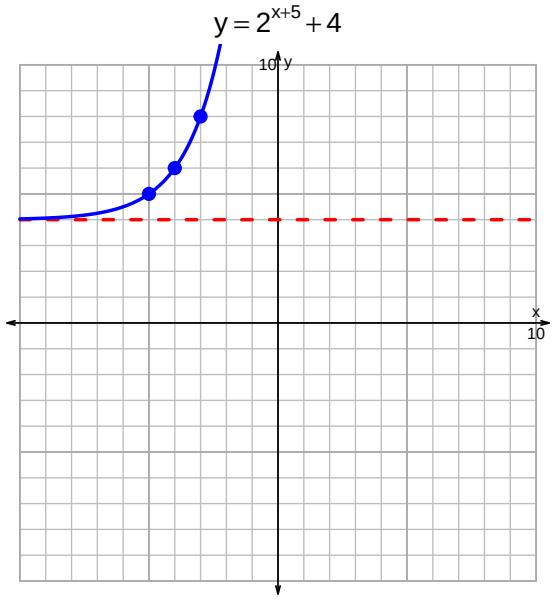
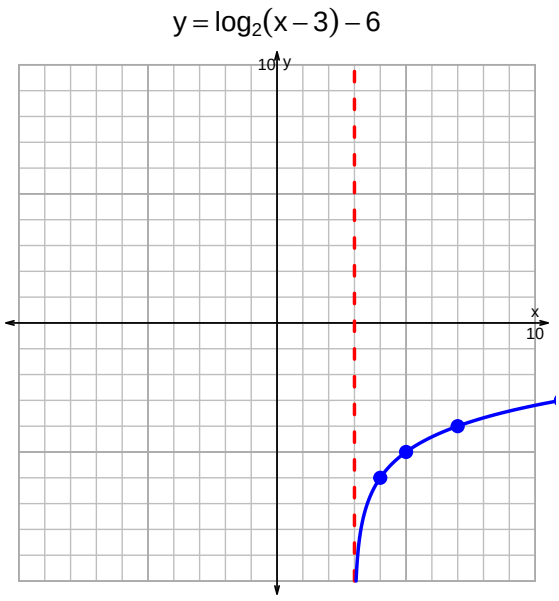
Name: Date:

s18quiz: EXP LOG (SLTN v201)

1. Graph $y = 2^{x+5} + 4$ and $y = \log_2(x-3) - 6$ on the grids below. Also, draw any asymptotes with dotted lines.





2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-5}{4}\right) \cdot 2^{7t/3}$$

Divide both sides by $\frac{-5}{4}$.

$$\frac{11 \cdot 4}{5} = 2^{7t/3}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{11 \cdot 4}{5}\right) = \frac{7t}{3}$$

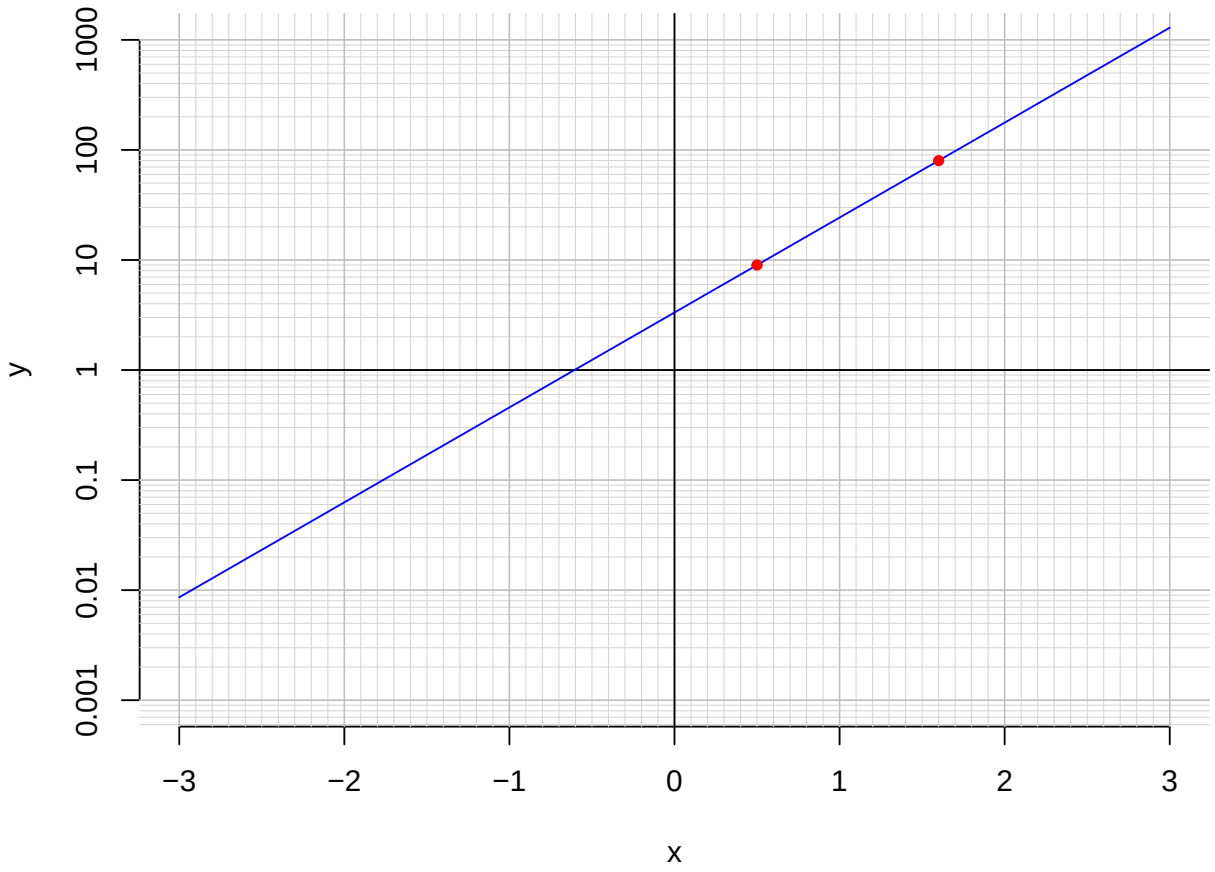
Divide both sides by $\frac{7}{3}$.

$$\frac{3}{7} \cdot \log_2\left(\frac{11 \cdot 4}{5}\right) = t$$

Switch sides.

$$t = \frac{3}{7} \cdot \log_2\left(\frac{11 \cdot 4}{5}\right)$$

3. An exponential function $f(x) = 3.33 \cdot e^{1.99x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(1.6)$.

$$f(1.6) = 80$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{1.99} \cdot \ln\left(\frac{x}{3.33}\right)$$

c. Using the plot above, evaluate $f^{-1}(9)$.

$$f^{-1}(9) = 0.5$$